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THE HABITS AND LIFE HISTORY OF *AMBLYSCIRTES NYSA* (HESPERIIDAE) IN MISSOURI

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This inconspicuous skipper occupies a rather limited range in the United States, occuring from Arizona to Texas and north into Kansas and Missouri. I first noted *Amblyscirtes nysa* in Missouri in 1955. It was extremely abundant that year and has been observed every year since in varying numbers. In Missouri the records are all from the western counties of Clay, Jackson, Cass and St. Clair. While other members of the genus found in this region are forest denizens, *nysa* is found in open areas. The great majority of specimens collected to date have been taken in city yards and gardens. This skipper is probably overlooked in many areas due to its habits of flying only a few inches above the ground and visiting only low growing flowers. It is often found resting on the bare ground where the mottled pattern on the underside of the wings make it almost invisible. This species is an avid flower visitor with rather peculiar tastes, especially attracted to Lima Bean (*Phaseolus*), Cantaloupe (*Cucumis*), Blue Spirea (*Caryopteris icana*) and Yellow Marigold (*Tagetes*). If any of these species are present *nysa* will ignore other flowers growing in the same area. The status of this skipper in Missouri is still uncertain. There is some evidence of overwintering larvae in this area but spring specimens are so rare that it seems likely their numbers are augmented by migrators from milder areas further south. There are at least four broods produced in this area, from May to October, with considerable overlapping in July, August and September. Host plants in Missouri are the following grass species, *Echinochloa pungens, Setaria glauca* and *Digitaria sanguinalis*. Wild females have been observed ovipositing on all these plants but the preferred host seems to be Crab Grass (*Digitaria*). The following description is based on a series of larvae reared on *D. sanguinalis* during September and October 1963.

OVA: Eggs are deposited at random on the leaves and stems of the host grass in the late afternoon, usually between 3:00 and 5:00 p.m. Egg small, about 1 mm. in width and height. The egg is hemispherical, shiny white and unmarked under 25 power magnification. The egg shell is devoured upon emergence.

FIRST INSTAR LARVA: Body white, unmarked, sparsely covered with short white bristles. Prothoracic shield black. Head shiny, unmarked and without visible hair. The first day the emerging larvae crawl to a leaf tip and make a semi-tent by pulling the leaf edges nearly together and attaching several silken strands to hold them in place. Small notches are eaten from the sides of the grass blade below the tent.

SECOND INSTAR LARVA: Body color medium green with a darker mid-dorsal line. Head black with a deep cleft dorsally at the epicranial suture. Prothoracic shield black. Body thinly covered with minute white hairs. In this instar the larvae live in a rolled up leaf tent of about 10 mm. length.

THIRD INSTAR LARVA: Body color pale yellow green, thickly sprinkled with minute black bristles. Tenth abdominal segment and abdomen paler green. First and anal spiracle marked with a black dot. Prothoracic shield pale green with a narrow black edge. Head pale caramel brown and cream in color. The epicranial suture is clearly outlined with darker brown lines. There are elongated vertical areas edging the epicranial suture from the crown to the base of the mandibles. The outer edges of the epicranial plates are cream colored nearly to the crown. The frons is cream colored. There is a wide dark brown band at the back of the head, ringing the prothorax. The mandibles are dark brown.

FOURTH INSTAR LARVA: Body color pale green, thoracic and abdominal segments nine and ten paler green. Body with a whitish overcast and thickly covered with minute black setae. Prothoracic shield white with two short, verticle black subdorsal dashes. Spiracles unmarked. Head white with numerous tan colored lines. The epicranial suture is outlined with a tan colored line and a band of the same color runs from the base of the jaws up the sides of the epicranial plates to the crown. A tan colored line parallels the vertical stalk of the epicranial suture at each side. The mandibles are very dark brown. Frons white with tan etchings. A tan colored band circles the back of the head, broken dorsally. Larvae in this instar live in a 2½ inch tent located midway up a grass blade.

FINAL INSTAR LARVA: Length 20 mm. Body color pale cabbage green with a dark green middorsal stripe. Many minute green blotches are visible over the body. Each segment of the body contains numerous wrinkles which give the larva the appearance of having many tiny rings circling the body. Prothoracic shield pale smooth green. The first and anal spiracles noticeable as small brown dots. Color of head creamy white. Frons grayish white with brown inner tracings. The vertical stalk of the epicranial suture is narrowly banded with bright orange brown. There is a tapered vertical dash of the same color rising from each arm of the epicranial suture. Another orange brown band starting at the base of the jaws curves up across the epicranial plates to the crown. The jaws are white with brown edging. There is a very narrow brown band on the back of the head circling the prothorax.

PUPA: Length 18-19 mm. width at wing cases 3.5 - 4 mm. Bright cream in color, a slight orange brown shading at the head. There are numerous orange brown bristles on the head and abdomen. Spiracles conspicuous pale brown dashes. Cremaster a single sharp point, bright orange brown in color. Pupation occurs in a sealed case made from a leaf of the host plant. The cocoon is thinly lined with silk. The leaf used for the cocoon is cut from the plant and lies among the rubbish at the base of the grass plants.

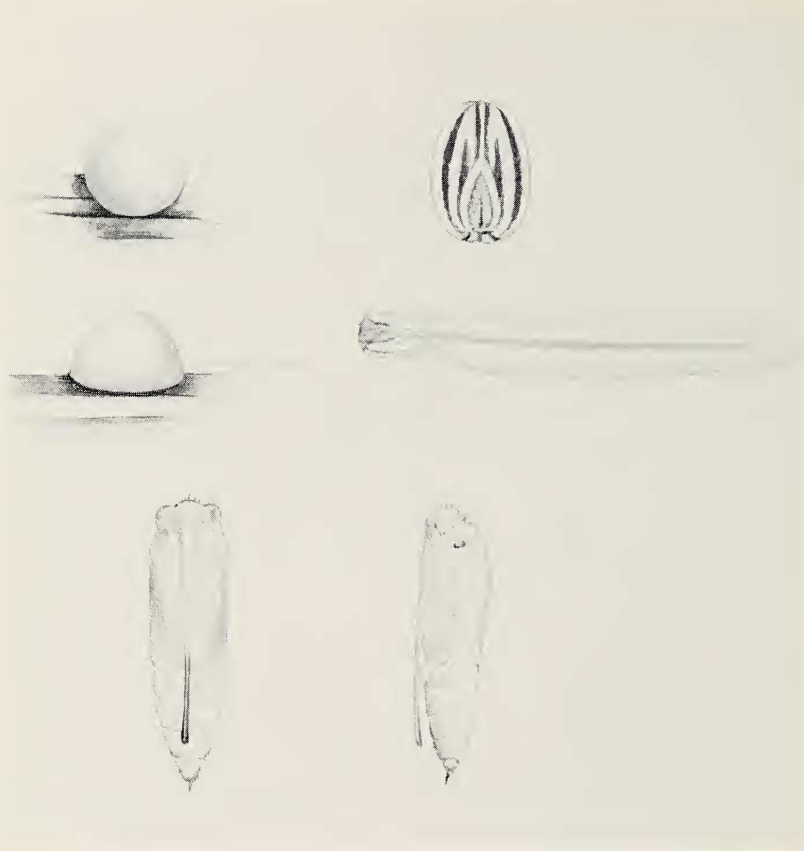

Fig. 1. Early stages of *Amblyscirtes nysa* Edwards. Ova, dorsal and lateral view. Mature larva, dorsal view and enlarged view of the head capsule Pupa, ventral and lateral view.

By 8 October all larvae had sealed themselves into a cocoon. About 80 percent pupated and emerged 10 to 13 days later. The remaining larvae went into hibernation until late the following April when pupation occured, triggered by the first warm spring rains. All of these pupae produced adults by the 15th of May. The average time spent in each instar was four to five days, the fifth instar requiring seven days, one of which was used in construction of the cocoon. I would like to thank WILLIAM HOWE of Ottawa, Kansas, for the accompanying illustrations and Dr. JOHN R. REEDER of Yale University for determination of the host plants.